W. C. ANDERSON & A. R. THOMPSON.

EXHAUST BOX FOR FRUIT CANNING.

APPLICATION FILED APR. 24, 1911.

1,093,305.

Patented Apr. 14, 1914.

3 SHEETS—SHEET 1.

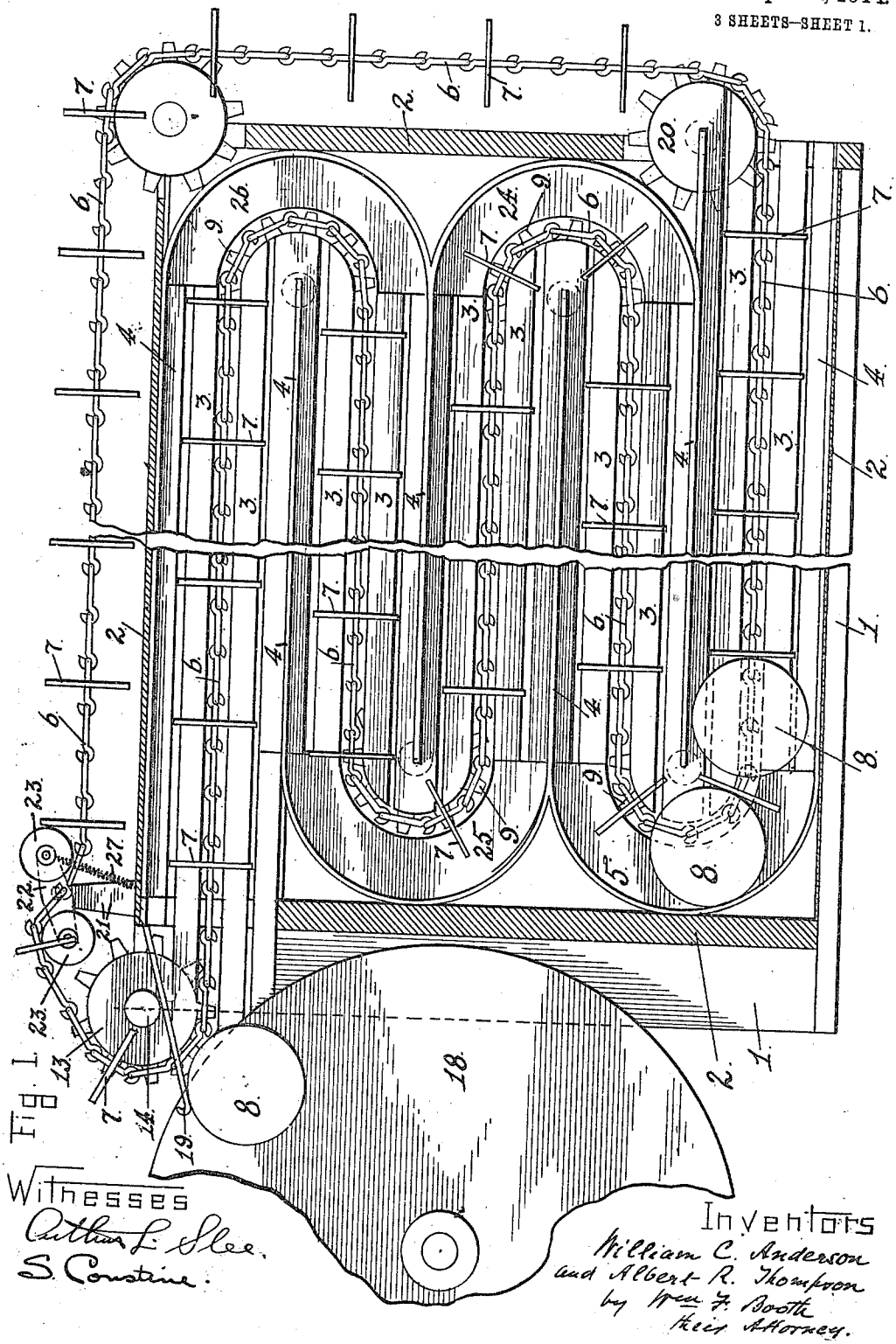


Fig. 1.

Witnesses

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S. Constine.

Inventors

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by Wm. F. Booth

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3 SHEETS—SHEET 2.

Fig. 2.

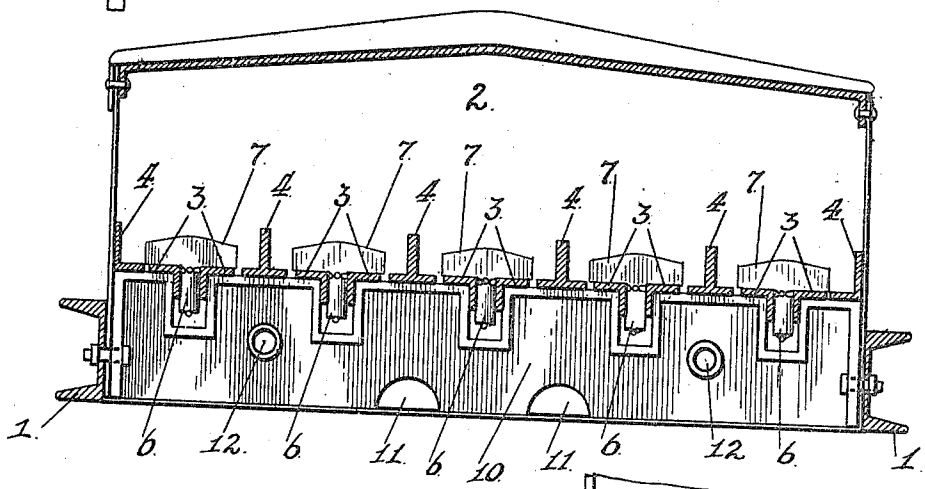
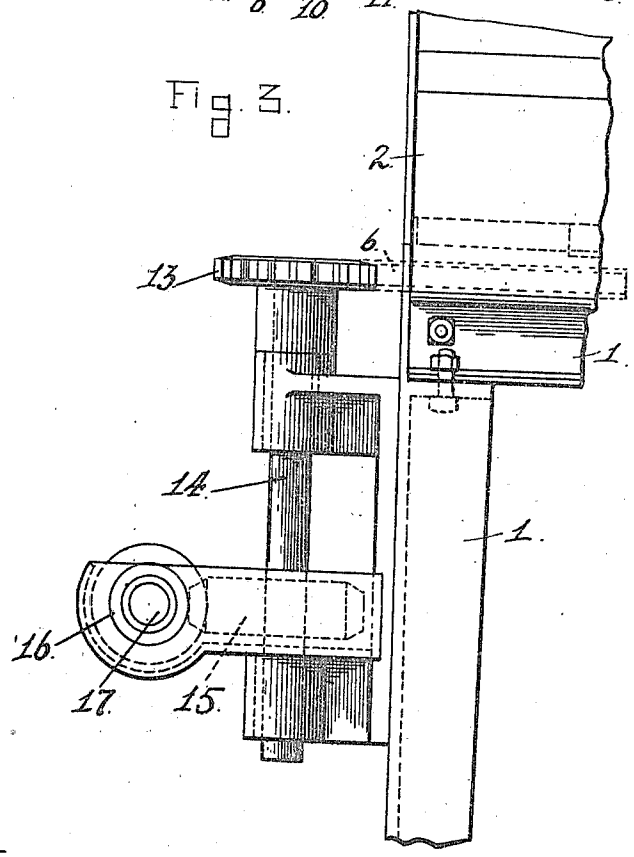



Fig. 3.




Witnesses

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3 SHEETS—SHEET 3.

Fig. 4.

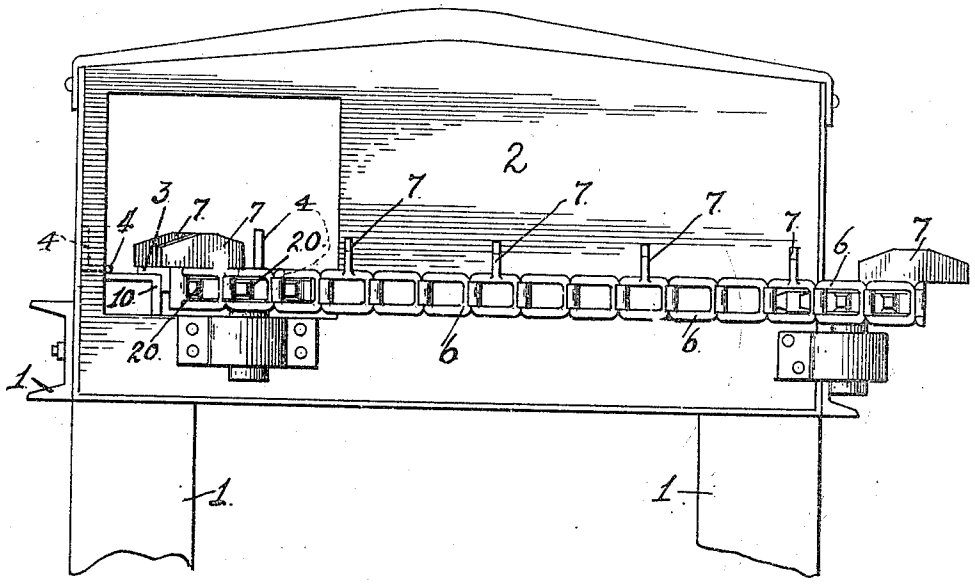
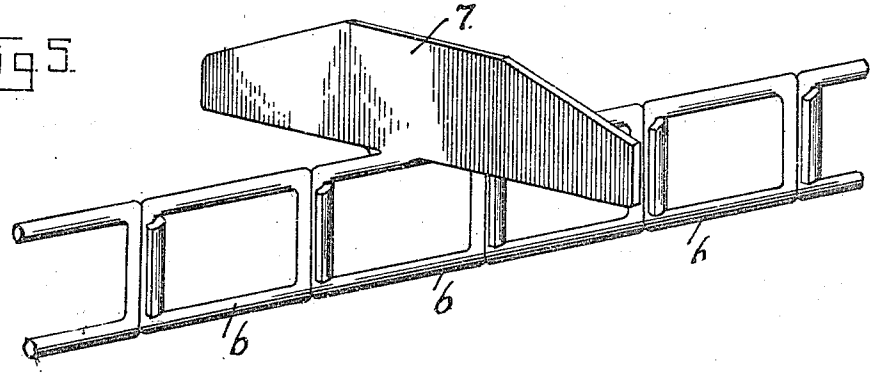



Fig. 5.




Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM C. ANDERSON AND ALBERT R. THOMPSON, OF SAN JOSE, CALIFORNIA, ASSIGNORS TO ANDERSON-BARNGROVER MFG. CO., OF SAN JOSE, CALIFORNIA, A CORPORATION OF CALIFORNIA.

## EXHAUST-BOX FOR FRUIT-CANNING.

1,093,305. Specification of Letters Patent. **Patented Apr. 14, 1914.**

Application filed April 24, 1911. Serial No. 622,897.

*To all whom it may concern:*

Be it known that we, WILLIAM C. ANDERSON and ALBERT R. THOMPSON, citizens of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Exhaust-Boxes for Fruit-Canning, of which the following is a specification.

Our invention relates to the class of heating or cooking chambers used in the fruit canning art, whether such chambers be what are specifically known as "cookers," or as "exhaust-boxes" the purpose of which is to expel the air from filled and syruped cans, by the application of heat, prior to hermetically sealing said cans. For the sake of simplicity we have entitled our invention "exhaust-box" and will for the same reason describe it in terms of such boxes, though it is to be understood that our invention is applicable to all heating boxes used for cooking or partial cooking in the fruit canners art.

In exhaust-boxes, as commonly used, the cans are carried forward the length of the box by one carrier; are then shifted from said carrier over upon an adjacent carrier and returned to the first end of the box; are then shifted over to a third carrier and carried forward again; and so on through as many runs as the box is adapted for. This to and fro course of the cans is to gain the required time to which the cans should be subjected to heat, without having an unduly long box; and in the common construction of boxes each carrier is a separate endless chain which passes through the box and returns under it. It is obvious that with such carriers provision must be made to shift the cans bodily from one carrier to the next; and it is in such means that difficulties are encountered, such, for example, as inaccuracy in the shifting resulting in obstructions, or such imperfection in the operation as to result in the spilling of the syrup.

Our invention contemplates an arrangement of a single carrier so disposed that it may be carried into through and out of the box in a to and fro course embracing as many runs as may be desired, said disposition of the carrier being such as to cause its single outside return course to lie along one side of the box thus conducing to cleanliness. The cans thus remain, throughout their entire course, upon the same carrier and require no shifting. They, therefore, go through with a stability which is not disturbed; which is the main object sought.

Our invention consists in the novel construction and arrangement of the exhaust-box which we shall now fully describe and claim by reference to the accompanying drawings in which—

Figure 1 is a horizontal section through the box, above the plane of the carrier. Fig. 2 is a vertical cross section of the box. Fig. 3 is an elevation at one end of the box showing the carrier driving mechanism. Fig. 4 is an elevation of the entrance end of the box. Fig. 5 is a perspective view of the carrier chain.

1 indicates portions of a supporting frame which carries the box 2. Within the box are the tracks for the traveling carrier and the tracks for the cans. These are parallel and extend lengthwise of the box. They may be in any desired number; we have here shown an assemblage of five. Each carrier track consists, as shown in Fig. 2, of a pair of inverted spaced angle bars 3. The can tracks consist of flanged bars 4, those at the sides of the box being of angle section, and the intervening ones being of T-section inverted. The can track bars flank the pairs of carrier track bars, and all the bars are so disposed as to form a series of horizontal surfaces which constitute the associated can and carrier tracks. Regarding one of these associated tracks as the inleading one, the farther end of this one is functionally connected with the adjacent end of the second one, as shown in Fig. 1, by a curved can guide casting 5. The other end of this second track is similarly connected with the adjacent end of the third track, by a can guide 24; the other end of said third track is similarly connected with the adjacent end of the fourth track by a can guide 25; and the other end of the fourth track is similarly connected by a can guide 26 with the adjacent end of the fifth track, which may be considered the outleading track. Thus a continuous course is pro-

vided forward and back, all in the same horizontal plane, and extending throughout the length and width of the box 2.

The carrier is of the endless chain type. It consists of a succession of articulated links 6, certain ones of which at regular intervals are provided or formed with cross flights 7. The links 6 are, in operation, disposed vertically, that is to say on edge, and the flights 7 are on the upper edge of said links. The up-edged links travel in the spaces between the pairs of track bars 3, the articulations of said links fitting and being well guided by said bars. The cans 8 are placed upon the carrier links 6, between the flights 7, and said cans find further support upon the flanges of the track bars 4. Where one line of tracks joins the adjacent end of the next line are placed sprockets 9 around which the carrier chain passes, and the cans at these points travel around upon and are guided by can guides.

At intervals in the box are set crosswise the track supporting and bracing plates 10 which are notched out under the carrier, as shown in Fig. 2. These plates have drain openings 11 in their lower edges, and steam pipes 12 pass through said plates. The pipes 12 constitute the means for heating the contents of the box. Where the carrier chain emerges from the box it passes around a sprocket 13 which drives it. This sprocket receives its motion from a shaft 14, Fig. 3, on the top of which it is mounted, the shaft being driven by a worm gear 15 on its lower end, engaging with a worm 16 on the drive shaft 17. As the can passes out of the box it is delivered upon a disk 18 by the deflecting action of a stop 19. The disk 18 being rotated carries the can away. From the driving sprocket 13, the carrier chain passes, as seen in Fig. 1, along one side of the box to its front and thence in any suitable course according to the nature of the plant in which the device is installed, said carrier chain is directed to the entrance sprocket 20, which leads it into the box 2, and directs it to the inleading tracks. Any suitable chain tightener may be used. We have here shown a form which consists of a bracket 21 secured to the side of the box, said bracket having pivoted in its end an arm 22 in the extremities of which are mounted pulleys 23. The chain carrier passes between these pulleys. A spring 27 extending between the arm 22 and the bracket 21, holds both pulleys to the chain and tightens it.

The operation of the device is as follows: The filled and syruped cans are placed upon the carrier between its flights at or near the entrance sprocket 20 and are carried into the heated box. The cans travel throughout the stated course on the same chain and between the same flights of the chain. There is but one chain carrier, and there is no occasion to shift the cans, as is done in the case where a number of endless chains are used. Each can maintains its place on the single carrier throughout its entire course, and progresses under conditions of stability which insure cleanliness and avoid waste by spilling. Moreover, the single chain here used by being set edgewise is adapted for the course illustrated and presents but a single outside return fold, and that fold at the side of the box, instead of as is usual with ordinary plural chains which are set flat, presenting as many outside return folds as there are chains, and these folds are under the box, where they are liable to collect dirt and to become unclean.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is—

1. In a heating box for fruit cans, and in combination with the box and means for heating it, a traveling carrier for conveying open-ended, filled cans in an upright position through said box, said carrier and cans being in the same vertical plane, and said carrier being directed to move the cans in a to and fro course in said box at a uniform speed.

2. In a heating box for fruit cans, and in combination with the box and means for heating it, a traveling carrier and a can support for conveying open-ended, filled cans in an upright position through said box, said carrier and cans being in the same vertical plane, and said carrier being directed to move the cans in a to and fro course over said support in said box at a uniform speed, said support being so positioned as to maintain said cans in an upright position.

3. In a heating box for fruit canning and in combination with the box having an inlet and an outlet opening, and means for heating said box, an endless traveling carrier for conveying the cans in an upright position into, through and out of said box, said carrier entering the box through the inlet opening, and being continuously directed in a to and fro course in a horizontal plane within the box, thence emerging from the outlet opening of the box and continuing beside the exterior of the box to the inlet opening again.

4. In a heating box for fruit canning, and in combination with the box and means for heating it, a carrier chain having links provided with cross flights on one edge, a series of horizontal parallel tracks within the box composed of pairs of spaced flanged bars to guide the articulations of the links and support the flights of the chain; a series of parallel flanged bars flanking the spaced flanged bars and forming can sup-

porting tracks lying in the horizontal plane of the chain supporting tracks; curved can-guides and supports at alternately opposite ends of adjacent can tracks; and sprockets at said ends disposed to rotate in horizontal planes and arranged to direct the chain within the box in a to and fro course in a horizontal plane.

5. In a heating box for fruit canning, and in combination with the box and means for heating it, a carrier chain having links provided with cross flights on one edge, a series of horizontal parallel tracks within the box composed of pairs of spaced flanged bars to guide the articulations of the links and support the flights of the chain; a series of parallel flanged bars flanking the spaced flanged bars and forming can supporting tracks lying in the horizontal plane of the chain supporting tracks; curved can-guides and supports at alternately opposite ends of adjacent can tracks; track-supporting cross plates within the box at intervals; and sprockets at said ends disposed to rotate in horizontal planes and arranged to direct the chain within the box in a to and fro course in a horizontal plane.

6. In a heating box for fruit canning, and in combination, a box having therein separated transversely extending supports with an opening in the upper edge thereof, a series of tracks extending longitudinally of the box, each track including oppositely disposed angle bars one flange of which engaging one wall of said opening and the other flange engaging the top of said support, and said bars being separated to leave an intervening space; an auxiliary series of tracks each comprising angle bars resting on said transverse supports and extending longitudinally of the box one to the outside of each of said first mentioned bars and having upright flanges, segmental shaped guides at alternately opposite ends of adjacent tracks, an endless chain carrier positioned in the opening of the supports and arranged in a sinuous course within the box, course flights carried by the chain and overlying the opposite disposed bars of the first mentioned tracks, and means for imparting movement to said chain.

7. In a heating box for fruit canning, and in combination, a box having therein separated transversely extending supports with an opening in the upper edge thereof, a series of tracks extending longitudinally of the box, each track including oppositely disposed angle bars one flange of which engaging one wall of said opening and the other flange engaging the top of said support, and said bars being separated to leave an intervening space; an auxiliary series of tracks each comprising angle bars resting on said transverse supports and extending longitudinally of the box one to the outside of each of said first mentioned bars and having upright flanges, segmental shaped guides at alternately opposite ends of adjacent tracks, an endless chain carrier positioned in the openings of the supports and arranged in a sinuous course within the box, course flights carried by the chain and overlying the oppositely disposed bars of the first mentioned tracks, the said box having side inlet and outlet openings, a receiving member adjacent the outlet opening, means adjacent the outlet opening for transferring the cans from the tracks to said receiving member, and sprockets for the chains supported from the box and arranged to direct the chain partially around the box and through the same in a to and fro course.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM C. ANDERSON.
ALBERT R. THOMPSON.

Witnesses:
WM. F. BOOTH,
D. B. RICHARDS.